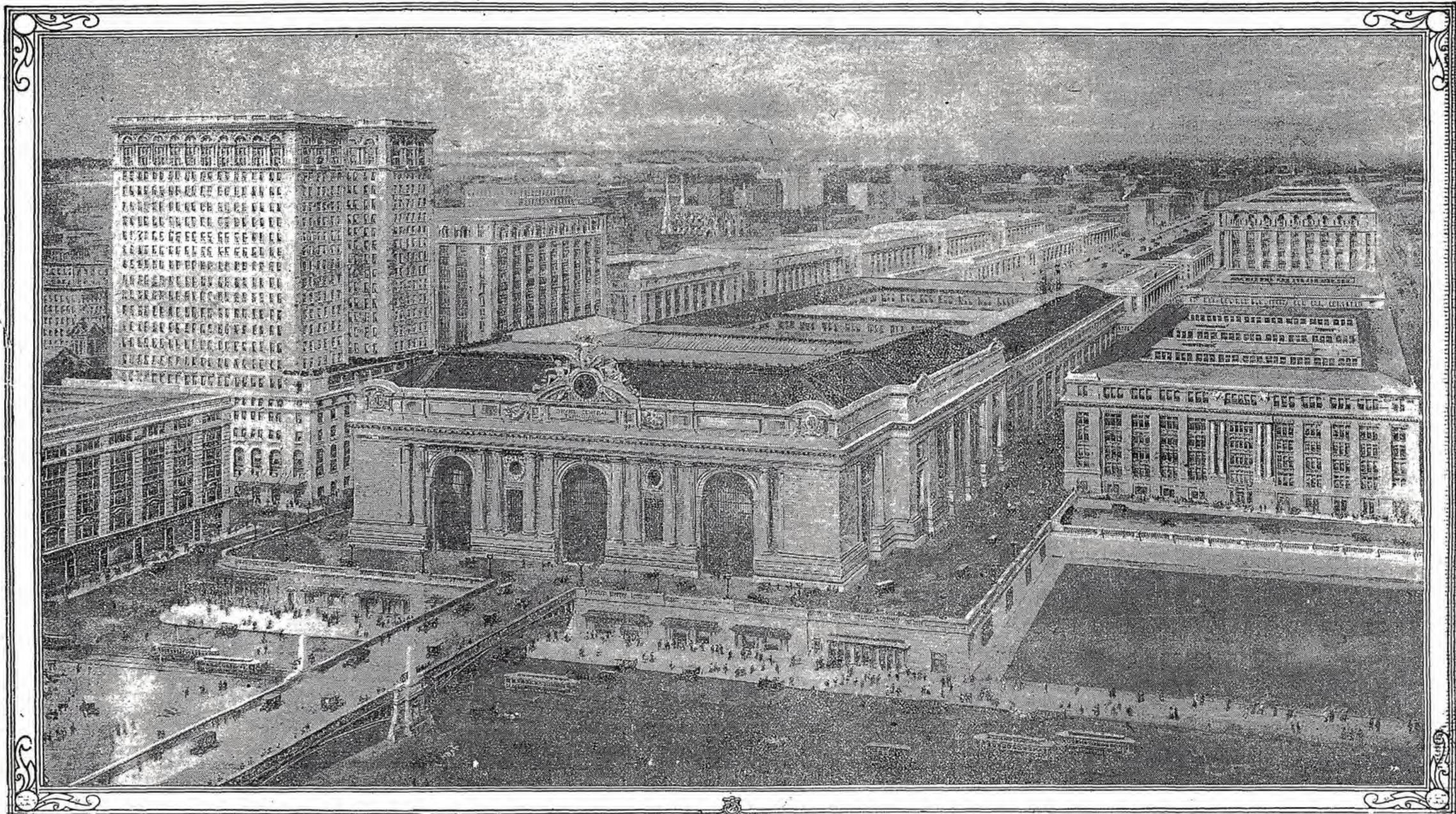
# The New York Times.

SUNDAY. FEBRUARY 2, 1913.



### With the Surrounding Buildings It Covers an Area of Thirty City Blocks - Can Accommodate 100,000,000 People a Year.

HE new Grand Central Terminal motive was banished, and from that some thirty city blocks. Part of this Having no basements of their own, the was thrown wide to the public banishment the builders of the new the railroad already owned. Part of it at midnight last night. Out terminal developed the idea of roofing had to be specially bought, but the of the excavation and the over the tracks and the trains and idea of using the air rights reduced by scaffolding, to the accompaniment building above them as though the road an immense sum the cost of the ter-

of the riveting machine, scores of vacant lots. the new station has risen amid the This possibility, this idea, was fraught structure and, beginning with to-day, the newest gateway to New York will

at 12:25 this morning. will pass through on this first day will already in usc. see only the beauty and convenience of the world's newest railway top-But to those who will have about the new terminal that will seem most outstanding and most significant is that the new Grand Central is more than a gateway, more than a terminal. The terminal proper, the great head are simply the heart and the cause of a group of buildings that has best been

described as a "terminal city." The old Grand Central was considered the marvel of its day, but when it became outgrown and the Directors of the New York Central and the New York, New Haven and Hartford began to consider the ways and means for building its successor they undertook a task larger than the mere replacing of the old station by a newer and larger one. They undertook to fashion anew that entire section of the city where the old station stood, to build or cause to be built thirty blocks of buildings in Manhattan, all guided by one hand that would supervise their purposes and direct the gen- York Central is reclamation work in

eral harmony of architecture. igation that the railroad could put its covery of city blocks where the very "air rights" to some good purpose, land of every block is worth between For decades it had owned the land where the trucks thrust their way down tion of land in a part of America where, to the very heart of the island and according to estimates which experts there spread out to form the huge, gap- have made, the very area taken up by ing, dirty, unsightly train-yards that one of the road's Pullman cars is - helped so largely to make the idea of worth \$30,000. It means the recovery smoke and noise inseparable from the and use of a great stretch of land that nineteenth century conception of a big would cost an almost inconceivable railway station. With the coming of fortune to buy.

of whistles and blasting and the had suddenly come into possession of minal. From a business standpoint, it

wreckage of the old. Already the with tremendous importance to the City suburban concourse has been in use for of Now York. Its development meant several months, the finishing touches reclamation work in the busiest and have been made on the rest of the most compressed part of the continent commensurate with the reclamation work carried on in the great arid be ready for the traveling public stretches of the Far West. It meant Through that gateway in the coming the restoration to the city of streets twelvementh close to 24,000,000 per- that for years had been given over to in place. Certainly no Director of the sons will pass on their way to and the purposes of the railroad. Park road is likely to tell you. But it is from the biggest city in the Western Avenue from Forly-fifth Street to equally certain that the improvements World. The schedule called for the dis- Fifty-sixth and the cross streets that will be possessed of an immense carnpatching of the first trainload of them formerly stopped abruptly, at either side of the yawning train yards are now Many of the hurrying thousands who appearing as streets, some of them

The two levels of tracks reaching from the outskirts of the city to Fortysecond Street have been depressed bebeard or read of the plans, the fact low the surface of the streets, great rights will serve to meet the overhead girders have been swung across to sup- charges of the terminal and when it port the restored thoroughfares, and over all the buildings of the terminal extent a big terminal in a big city can city are rising one by one, a real of itself be made a source of revenue estate development of monumental pro- instead of a tax upon the traffic. portions. It was started ten years ago. It will not be completed for many years just the centre of a group of buildings. to come. The opening of the terminal some finished, some in the course of proper simply means the opening of the construction, some thoroughly planned keynote building of the group. All this which will give over their basements terminal city, this assemblage of build- to the going and coming of hundreds ings of such varied purposes, was made of trains a day. possible by the installation of the electric motor. The scheme could not have been carried out-it could not even have been conceived-in the day of the dirt and smoke and noise of the old steam locomotive. The rock-bottom fact of the entire enterprise is the electric motor, powerful, swift, silent and clean.

Reclamation of Millions. This reclamation work by the New one of the costlicst stretches of ground This was made possible by the real- on the continent. Its end is the re-\$2,000,000 and \$3,000,000. It is restora-

the electric motor the old steam loco- The entire scheme involves the use of

was just as though the space to be excavated for the tracks of the terminal were in a part of the country where land cost little or nothing instead of in one of the busiest and most intense parts of Manhatian.

It is probable that no Director of the New York Central can tell you just how much the entire terminal city will have cost when the last stone is put ing power that will go far toward making an adequate return on the entire investment. One of the most important and most interesting chapters in the world's history of railroading will be written when practice shows to just what extent the development of the air can be definitely stated to just what

As it is, the new Grand Central is most significant structure of all, the and some only dreamed of-buildings

Fourth Floor " Basements."

It is one of the most striking things about the terminal city that it will be an array of buildings without any real basements-without any basements that are really at the base of the buildings. In the buildings already completed, the Grand Central Palace, for instance, or the huge office building that accommodates the executive business of the road and the terminal, the "basements" are on the fourth floor. They call these quarters "basements" because they are dedicated to purposes usually fulfilled by basements. They have storage rooms, and

the rooms. For all the buildings of the Grand Central group will be heated from one minal city could a space of 400 feet power and heating plant, the one al- by 400 feet of commercial ground ready erected at Fiftieth Street, be- easily be put to the use of some big

they accommodate the big pipes from

which radiate the myriad pipes to heat,

buildings of the group, both present and prospective, will have to depend. on the machinery housed at Fiftieth Street. This already sends the hot water down to the head house, to the general office, the Post Office, and so on, and some of it travels more than a mile before it returns to the heating plant at Fiftieth Street.

From the roof of that plant two hugo smokestacks rise to a towering height. These smokestacks are interesting, for they are the only ones in the whole thirty blocks. And when the thirty blocks have all been "improved " they will remain the solitary smokestacks of that part of New York. Even they are equipped with the last word in smoke consumers, so that, even when it is a completed and thriving area, the terminal city will be smokeless. That is one element in the promised beauty.

Park Avenue, restored from Fortyfifth Street north as a great double thoroughfare, is another, and, for the buildings themselves, it is simply promised that in cornice lines and general style they will be made to conform to the one stately architectural plan. Harmony, then/ is another cloment in the promised beauty of the

Of the thirty blocks, some fourteen are already built on or definitely allotted. The remaining sixteen are yet to be allotted. The terminal itself, with the offices over the baggage quarters, the extra office building, the Grand Central Palace, with its auditorium, the power and heating plant, the Adams Express Building and the Post Office are completed. The Biltmore Hotel and the incoming station, another botel, and a Y. M. C. A. are definitely decided upon. It is highly probable that the new homes of the Yale Club and the Racquet Club will be placed within the terminal group.

Some Dreams Realized.

There are other building enterprises that have been spoken of, but which to-day are little more than dreams, dreams that the architects dreamed when they found themselves facing an opportunity so unusual in the history of city building. They found themselves working with big spaces in the heart of a metropolis. They realized that only within the area of the tertween Park and Lexington Avenues, artistic enterprise. Only in the jeal-

ously guarded parks of Manhattan could the National Academy of Design find another upot so suited to its purpose or the Directors of the Metropolitan Opera House find space at once so ample and so accessible for a new home. The possibility was immediately presented then, of having Park Avenuo open into a great plaza with a stately new opera house set in the centre, rivaling the beauty of the Place de l'Opera in Paris. The idea of placing the Metropolitan in the terminal group is an architect's dream. At present it is nothing more. So there has been talk of placing the National Academy there and other similar buildings, but they are dreams only. The future may see them there, and it may not.

But the Biltmore Hotel is fur more than a dream. It is a definitely planned botel that will tower twentythree stories into the air, just to the west of the terminal. In some ways the Biltimore will be just a little different from any other in the long list of New York hostelries. It will owe its distinction to its being part and parcel of the terminal itself, for the Biltmore is to rise above the incoming station. It will open into that yet

unbuilt part of the Grand Central. The passenger prriving at the ter minal from somewhere beyond the limits of New York will be able to walk directly to the elevators that will lift him to the lobby of the Biltmore. Ho will be able to go directly from his seat in the Pullman to his room in the hotel, not only without having stopped from under cover, but without once having passed beyond what will really

be one structure. This notion of a hotel built in connection with a terminal provides endless diversion for the idle fancy. It has hiready been pointed out that when the Blitmore is a thing accomplished your business man from Chicago will be able to come to New York, stop here over night, attend to his business down in Wall Street, and return to State Street and Michigan Avenue without once having come out into the open. This will be the castest thing in the world when he can go directly from the train to his rooms-his baggage may got there ahead of him and without having been rechecked at that-dine in the big dining hall, revel in a Turkish bath and spacious plunge there that night, travel on down to one of those big office buildings that have Subway connections in their basements, wind up his business, and re-

turn by the Subway to his hotel, to his train, and to Chicago without ever having put his head out of doors in Now York. Incidentally he will be ablo to do any little shopping that is on his mind, for there will be a lot of speelalty shops beneath the Blitmore. The aforesaid twenty-three stories reach into the air. There are five other stories that plunge into the ground.

Another feature of the Biltmore that will serve to distinguish it somewhat from many of its competitors on this island will be its roof. The grand bullroom and dining hall of the Biltmore is to be on the twenty-third floor. It is to be so built that when the warm ovenings come the windows can be taken out and the whole area converted into a roof garden of roof gardens. From a table there, milord and his lady can look out to the dark stretch of Central Park to the north, and to the south the Metropolitan tower and far away the tip of the Woolworth Building; to the west the Times Building, and beyond the Hudson and the Jersey shore, and to the east the East

River and Long Island. Gustav Baumann, long identified with the Holland House, is to preside over the destinies of the Biltmore. It is to rary building, temporary train stadi be a hostelry of the "de luxe" sort, and the Directors of the road hope to borhood of \$2,000,000. see it regarded as one of the finest | Besides being costly, it was extreme hotels in all the world.

Big Popular Hotel Also.

A hotel of another type, a thoroughly modern commercial botel with rooms and substituting there, now tearing numbering possibly up to 2,000 and down, now building up, the new terany of them to be had on moderate minal has grown out of the unsightly terms, is planned for another part of without seriously interfering v the terminal group. It is probable that this will be built directly to the east of the headhouse at Forty-second Street and Lexington Avenue, where the hospital stands now. The only reason 1912, the number of persons passing why the plans are not more definite is because the subway plans have not been more definite. When it is finally established just where the line of the Lexington Avenue Subway is to be, then the work of building the big com-

mercial hotel will be started. These, at least, are some of the buildings which will go to make up the terminal city of which the new Grand Central itself is now to be a thing of torn down, but the traffic beneath was daily use to thousands of persons.

Some notion of the magnitude of the new Grand Central may be gathered from a comparison of its proportions the work of demolishing the old shed. with those of some of the world's great railway stations. These figures are The Scientific American's:

New Grand Central Station .... 13.0

The number of tracks in the terminal is here given as 46. "Thore are really 68, but only the 46 have plat-One of the things that will always

be remembered about the new Grand?

Central is that it was built amid the wreckage of the old. The never-ending! business of the terminal hald to go on uninterrupted. The very depression of the tracks beneath the level of the out streets involved a hugo amount 22 lats bor. It meant the excavation of 6.800,-5 000 cubic yards, about 2,000,000 of them solld rock. The carth and stone dug and blasted there in the train yard? had to be carted away in dirt cars; which added a long string to the alta ready heavy and complicated traffic of the terminal. This work is not yet?

So in the wrecking of the station itself the work had to proceed while? hundreds of thousands passed to and from the trains every week. This in+2 volved an immense amount of tempe temporary walks, temporary trestles

the big work as at some chessboard where buildings were castles and pawns were trains. Now shifting here: debris of its prodecessor, and grown traveling public.

Just what this meant could be seen when the New York Central announced with no small pride that during the eight days from Aug. 30 to Sept. 6, through the terminal was Q14,000. This was the Labor Day traffic. There were 4,826 trains handled during this; same period, with an average delay; of but twenty-one seconds a train, which is pretty nearly perfect opera-

The removal of the old train shed alone was one of the most difficult and daring things in the history of building. It was 600 feet long and hada 200-foot span, a huge thing of steel and fron and brick and glass. With the not halted for so much as an hour. In the busy hours of the day an enormous moving traveler, sliding along rails, built on high platforms, attended to section by section. In the slack hours of the night the debris was lowered. to the worktrains and hauled out of sight and out of mind. Some notion of the scope of this singlo task may be gathered from the fact that it meant the removal of 1,350 tons of wrought iron, 350 tons of cast iron, 90,000 square feet of corrugated iron, and 60,000 square feet of glass. The traffic was not only not halted during all this wrecking, but not an 16 accident occurred to mar the story of it, Altogether the building of the new

Grand Contral Terminal was no easy.

## SOLVING GREATEST TERMINAL PROBLEM OF THE

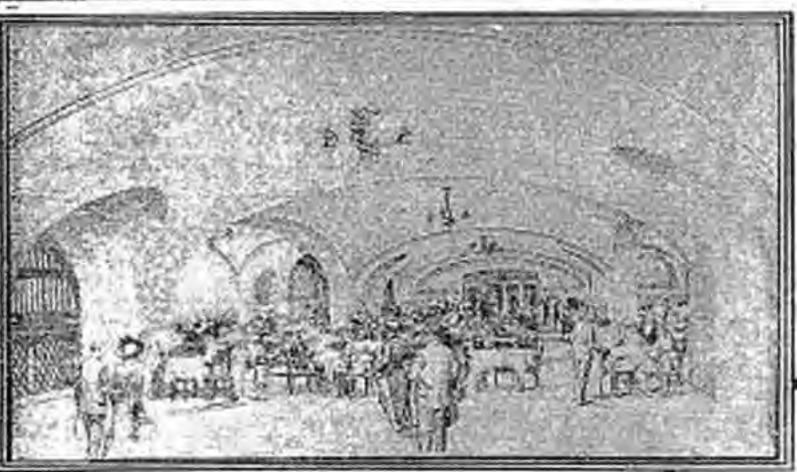
Looking Ahead to Possible Traffic Devel-

opment, the New Structure Has a

Passenger Capacity Equal to Any

Conceivable Emergency.

degree of inclination decided upon was



R.ESTAURANT

N view of the many charges that | Most striking to the casual student, undergone in the course of its his- installed for the proper handling of

rucry the following facts will be of and all the persons going to and from

The new terminal was built to last for many years. This does not refer to the granite and limestone of its exterior, but to its capacity to handle the milldons who will use it every year. It is, L'fairly casy guess to fix upon twenty-Your as the number of millions who will i pass through this gateway before Feb. 2; 1914. It is not so easy to say what the traffic will be in 1918 and 1920, so startling are the leaps and bounds by which New York advances in numerical strength and significance. What will it. be in 1930 and in 1940? That was the question which the builders of the new terminal asked themselves as they confronted their problem. They say -to-day that they have completed the essential structures of a station that will easily accommodate 100,000,000 in a year. That boast means simply this -that through this new gateway to New York the entire population of the United States could pass in a single year without crowding and without;

#### The Station Problem.

confusion.

The preparation for the handling some day of a traffic so enormous suburban concourse, now in use, and mennt two converging lines of effort the restaurant. The new station had to be large It has even been said of the great fenough. It also had to be convenient waiting room that it will prove an esenough. It had to be roomy, but mere zential part of the systematization roominess would not serve the purpose. idea. It has been designed as a place In a sense, the very size of the ter- to walt, just that and nothing more. minal threatened to be a drawback. It The new Pennsylvania station has almust not be too large or seem too large ready taught the comfort of that kind for easy use. The architects set before of waiting room, where all the old themselves the problem of planning a hubbub of ticket buying, information station that would be as compact as seeking, parcel checking, and relative the little station of a little town. In a meeting made anything like restful senso; then, the new Grand Central waiting a painful if not an impossible Terminal was planned to be one of thing. the ... smallest" big stations in the world.

... To put it in another way, the builders of the terminal expended every spergy in their effort to make it a thing of convenience as well as of size and of beauty. They foresaw that they simply had to climinate, as far as it was humanly possible, the old confliets and friction of the old railway stations. They forestw that it would he preposterous to expend scores of millions in an enterprise that would prove cumbersome in the using.

One of the most conspicuous features

the New York Central's termina, has some very ingenious devices have been tory, people are asking, quite natu- the express and the suburban traffic. rally, whether the great railroad sta- The first level beneath the surface don that is open to-day for the first of the city streets is given over time is the final, permanent structure, to the people using the express trains. adequate to accommodate whatever On this level the passenger will find future development may come to the the main waiting room and the grand great system of traffic to which it be- express concourse. The second level ongs. In answer to this pertinent accommodates commuters innumerable

the suburban trains. Here is the



MAIN CONCOURSE ~ 2018 T. LONG, JOOKT WIDE ISS FT HIGH

### The "Kissing Galleries."

As the last word in segregation, consider the announcement that even sentiment is to be segregated in the new Grand Central Terminal. There are specially designed parts of the station known as the "Kissing Galleries." They are the places where you may go to meet the person you want to meet. These golleries run alongside the inclined walks on which the stream of passengers from a train just arrived make their way to the street. Slight-

ly elevated, it is promised that they will offer exceptional vanof the terminal plans was the obvious tage points for recognition, hailing. The problem of the footways for a eight in every 100 feet, and these

simple ideas have been carried out and is gone, for the car platforms and the mental slopes were built and every vastation platforms are built flush.

Everything is segregated. When the over the terminal, and the indignant fronted the builders. The infinite pains comfortably from a train to Forty-secthing is all done there will be a sepa- handlers of the baggage trucks would taken in this respect is used as an ond Street. ing and outgoing passengers. These being blocked by leisurely demonstra- detail. When it was decided that instations will be all part of one structions of affection. But we have clined walks should serve as the foothas entered into the preparation of be equally worthy of attention. The
from Queens could be switched to the cle for traffic of the formalism.

Simplest thing in the world to get from One of the great simplifications that ranean station, the idea was borrowed tion. To the end that the paving many other features of the new station and park Avenue.

The lowest of all will be the other. But they will be the other than the paving many other features of the new station, the idea was borrowed tion. To the end that the paving many other features of the new station and park Avenue.

The lowest of all will be the other than the paving many other features of the new station and park Avenue. one to the other. But they will be have been carried out for the new from the sloping roads that led the terial used should be just the best or four years be absolutely honey. Meanwhile, curving in from Sixth The lowest of all will be that of the designet. The incoming fells will not distinct. The incoming folk will not terminal are the ramps, which is the way for the charlets into the old possible for the purpose, every feasible combed with rapid transit lines, and Avenue, perhaps under Bryant Park— Steinway Tunnel, which will have important the outgoing. More important are the ramps, which is the way for the charlets into the old possible for the purpose, every feasible combed with rapid transit lines, and Avenue, perhaps under Bryant Park— Steinway Tunnel, which will have important to the old possible for the purpose, every feasible combed with rapid transit lines, and avenue, perhaps under Bryant Park— Steinway Tunnel, which will have important to the old possible for the purpose, every feasible combed with rapid transit lines, and avenue, perhaps under Bryant Park— Steinway Tunnel, which will have important to the old possible for the purpose, every feasible combed with rapid transit lines, and avenue, perhaps under Bryant Park— Steinway Tunnel, which will have important to the old possible for the purpose, every feasible combed with rapid transit lines, and avenue, perhaps under Bryant Park— Steinway Tunnel, which will have important to the old possible for the purpose, every feasible combed with rapid transit lines, and avenue, perhaps under Bryant Park— Steinway Tunnel, which will have important to the old possible for the purpose, every feasible combed with rapid transit lines. 'meet the outgoing. More important official and proper name for the in- Roman camps of Julius Caesar's army variety was put down for experimental the ingenuity of the engineers will be perhaps under Forty-second Street— mediately above it a meszanine floor. than that, they will not run into one clined walks leading from the street —no pains were spared to arrive at purposes in that much traveled footto the trains. It is one of the most just the proper angle of inclination. way leading from Forty-second Street lines with the greatest convenience to station near the Public Library. The B. by a stairway or by an elevator, which Til the elimination of many of the interesting things about the building To determine this, ramps of every to the temporary station. Then the countless little conflicts and confusions, that to all intents and purposes it is possible angle were installed and the experts sat by and studied the effect operating difficulties. once considered the inevitable draw- stairless. Even that painful, annoying, effect on the unconscious public was of the people on the pavement and the Backs of a big terminal, some very and dangerous step at the train itself watched and noted with care. Experiricty of person was induced to trudge how best to throw the light on those signed to one of these. STRUCTURE etters. Millions of eyes and every

MAIN IWAITING ROOM

important to the casual travelor, but where it has been built. In the same for the Interborough, will connect with stratum on which both the present which loom large when it is considered way the Lexington Avenue Subway the present Subway close by Grand subway and the new Lexington Avenue with what unbelievable care the de- will occupy the first level along that Central. The plans for this have not trains will run. It is proposed to bring tails were studied. But that is what thoroughfure. Then the Steinway Tun- yet been worked out, but, in a general the Lexington Avenue Line into Park it means to build a great terminal nel. which already hus been con- way, it is understood that the Public Avenue by a curve under the site of with the twentieth century idea of ef- structed westward to a point between Service Commission is in negotiation the old hospital and the Grand Union There is the promise of innumerable son of the necessity of getting beneath Company for the construction of a Forty-third to Forty-first Street. ficiency checking every step. . .

when the evening hour with its festivi- west side of the city. There will be of the New Jersey railroads, except the tles is at hand.

The Room of Rooms.

very dimensions are impressive-201 able to operate trains along the routes arriving at the Grand Central will ray Hill in Park Avenue.

oup and down them and report the de- | feet long. 125 feet wide, and 125 feet rivals will be replaced in time by an projection of the Third Avenue "L" gree of approval or disapproval. Fat high. Its walls are finished in Bot- illuminated board with movable let- which extends along Forty-second men and thin men, women with long ticino marble and buff-tinted stone, ters controlled from a tower in the Street. Some way will be found to skirts, women with their arms full of and now that all the unsightly scaffold- yard. The setting of the switches for have that down. bundles-all these tried the ramps and ling is stripped away and the light fulls the arrival of a train on a certain Once in place, this overhead street announced their impressions. The final softly through the great mullioned truck will be the signal for the flash- will be admirable, for it is designed to this concourse by the sloping walk of terminals. from the waiting room or down the The grand concourse floor of the ter- the station by carriages and automosteps from the covered causeway where minal is on a level with the mezzanine biles. At its north end it gives on a the cabs swing in from Forty-second or ticket-window floor of the subway, gallerylike roadway that completely Street. In it are the ticket offices, the This distinction was accorded the con- surrounds the head house and reaches baggage checking booths, the informa- course because it was found, by count- each of its many carriage entrances, as tion bureaux, and the like, all arranged lug, that about 80 per cent, of the well as the cab stands and baggago in a logical sequence so that the logical passengers coming to and leaving the rooms just beyond. Besides lifting the

acres of tracks should approach, give underground transit. It will be shared there stretches due north as the main forth their passengers, move on around by the present subway, the extended artery of the "terminal city."

Another innovation in the new ter- borough.

LADIES WAITING ROOM

the loop, halt to deposit their bagguge, McAdoo tubes, the Steinway tuesel and then sweep on out of the terminal. and the Lexington Avenue subway. The old incalculable loss of time from All these and the surface and elevated backing and shifting will be gone with lines will pour an unending stream of this new system introduced, and just as traffic into the waiting terminal, makthe incoming and outgoing folk have ing it, perhaps, the most active spot been separated, and the express traffic | the world has ever known. divided from the local, so the old confusion of baggage and traveler will be the Grand Central pictures as they abolished. It will all save time and have been drawn architecturally and climinate friction, and it means a for- published off and on during the first tune to the New York Central to have two years may wonder, when they jourtime saved and friction eliminated in ney over to that part of Forty-second

nouncers to a paging service, so that and graceful bridge thrust from the a person believed to be in the terminal very centre of the terminal's main and wanted in a hurry will be stur- façade to the higher level of Park Avetled, perhaps, to hear his name called nue at Fortieth Street, just over the forth from the walls with the informa- arch of the Park Avenue tunnel. The tion that a man or a message or a street is not yet built, but it will be. telephone awaits him at such and such Its building is up to the city, and the a place. The familiar blackboard with symmetry of the arrangement will not its chalked announcements of train ar- be interfered with by the unsightly

windows there is something more of ing of the announcement. This will do a large part in alleviating the street warmth and comfort than of austerity save a few seconds, and they are tak- congestion and confusion at the doors In the great concourse. You enter ing care of the seconds in the newest of the terminal. The bridge will form

passenger need not retrace his steps. terminal did so by way of the Inter- vehicular burden from Forty-second

minal that will prove of great signifi- Part of the complete terminal will era approach to that sumptuous boulecance is the loop system of tracks. It be a great joint subterranean station vard which is being cluborated on the was planned trains on the seventy-nine for the converging lines of the city's other side of the terminal and from

Many of those who have examined Street, as to the whereabouts of that Other little devices promised are the everhead street, which, in the cut necontinuation of the megaphonic an- companying this text, shows as a light

> the direct route for the approach to Street this bridge furnishes the south-

### NEW TERMINAL THE HEART OF CITY'S TRANSIT SYSTEM

RAND CENTRAL STATION as they follow at present, during the reach the Broadway line, and, by the system. The present Interborough Sub- simple shuttle service.

many other features of the new sta- solid rock on which this part of Man-

variety of deficient sight had their Subway has been built on the first fare. weight in deciding these questions- level just below the surface of the Then the Lexington Avenue

comparatively little traffic across town, West Shore, and through Newark far

very important Steinway Tunnel line, will provide for the use of two of the the open air. which will run across town to Times present trucks for the end of the Steineffort to systematize every activity and the subsequent embrace. Time terminal to be built underground was slopes are said to be so gentle that if a Square and was built from the end of way Tunnel line. This, it is suggested. Public Service Commission is set forth such which henceforth it will be astir. with which henceforth it will be astir. was when the embracing went on all not one of the least of those that con- child can toddle at all it can toddle Forty-second Street more fortuleously. Will be slowly raised from the third to in a remarkable drawing of what a was when the embracing went on all not one of the least of those that con- child can toddle at all it can toddle Forty-second Street more fortuleously. When the So it will happen that, wonderful as the first grade at Fifth Avenue and will cross-section of Manhattan Island just is the new Grand Central Station, from ultimately use the two southern tracks south of the Grand Central Station will This same elaborate study of the the engineering point of view, the com-

> means, unconsciously the hurrying ics which will defermine the position reached by which passengers from of the Grand Central Station itself. millions contributed to the shaping of of the new lines, a few factors in the Brooklyn, who have come up the new Then, above the Steinway Tunnel's the new gateway to New York. In case are fairly well settled. The en- Broadway line, will transfer at Herald mezzunine, will come the level consethis wise, the station builders learned gineers look upon all the ground below Square to the McAdoo line. They will cruted to the McAdoo tubes. The just what size and what shape letters grade us divided into three levels, and thus be carried to the Grand Central trains from New Jersey, according to to use over the train gates, and just every underground line must be as- Station from any part of Brooklyn the rough idea at present entertained, At the present time the Interhorough change of cars, for a single five-cent will come to a dead end. A cross-over

> questions that seem so small and un- street. This will, of course, remain which is now in course of construction Third and Lexington Avenues, by rea- with the New York Central Railroad Hotel, with the station stretching from smaller conveniences, everything from the bed of the East River, is on the great sub-grade concourse underneath attendant physicians and barber shops third level, and will naturally be car- the site of the old Hospital for Crip- an angle a block or so south of Fortycarried to an effete perfection to spe- ried further on at the same depth. pled Children, at the corner of Forty- second Street, and there will be plenty cial dressing rooms for the suburbanite This leaves the second level to the second Street and Lexington Avenue, It is anticipated that the present Sub- From this there would be direct access way between Times Square and Grand to the Grand Central Station in exactly transfer from the Lexington Avenue Central Station under Forty-second the same way as there will be direct across town by the shuttle service to

the main entrance to New York greater part of the time the piece of Manhattan Bridge, or the Whitehall City is naturally a most impor- truck, now perhaps the most traveled Street tunnel, will find themselves on tant point in the local rapid transit of all in the city, will be left to a any of the great network of Brooklyn elevated roads, which run to Coney way was laid out to pass its doors, the This will be convenient enough, if the Island, Cunarsic, Erighton Beach, Janew Lexington Avenue Subway will Public Service Commission decides to maica, and so on. Moreover, they may come down its eastern side, and the adopt the plan urged on them by the connect with the Long Island Railroad McAdoo Tubes are to be carried up firondway Association and the Times at Atlantic Avenue. So it follows that Sixth Avenue and under Forty-second Square Association for the construct a resident of Montauk Point or Green-Street to bring passengers from New tion in Times Square of a great con- port, after getting into the Long Island Jersey to the great terminus. These course, where the crowds who will train at his own station, may travel to lines were designed to reach the Grand naturally flock to the great west side any point on the American continent, Central Station because of its exis- traffic centre may be distributed easily reached by trains from the Grand Centence, but to them must be udded the and safely under cover. Moreover, it tral Station without ever going out into

The tentative plan drawn by the

line, trains to reach any track,

· Above the McAdoo level will be the

Thus the two subways will meet at proach, to construct a large exchange station for passengers who wish to

From this the ascent to the street will of course be easy, and it is the street which forms the sixth level and though the physical connection be- into the hinterland of New Jersey, but from the bottom of the series. A tween the Forty-second Street line will they will also, by the transfer arrange- seventh will be supplied by the bridge The room of rooms in the new Grand be maintained with both the west side ment at Herald Square, give access to to be thrown across Forty-second Central is the outbound express con- and the east side lines, so that in case all the great B. R. T. system. By a Street from the new Grand Central, in course, a giant room of which the of emergency the Interborough may be change of cars at this point passengers munication with the summit of Mura

#### FACADE OF THE TERMINAL THE KEYNOTE TO THE

fime for the opening of the new ter- that point will watch it emerge in grad- glory of some great personage. The mimil, this has meant simply that by ual beauty and significance. But the city of to-day has no wall surto-day the huge station would be ready working model from which the for use. To-day the vast concourses group is to be fashioned is still in the tion, as a pretext to such glorificaand waiting rooms would be ready for Paris atelier of Jules Coutant, the tion, but none the less the gatethe traveling public. It has not meant sculptor who won the commission of That by to-day the final touches would designing it. have been put upon the entire structure. The business of perfecting it will bo'in progress all this year and next year and beyond.

will not be in place for months to come. to stand, forty feet in width, above the dentral portal of the Forty-second Street facade and will, in the words of the Grand Central's own literature of the new terminal, represent " Progress, "Mental and Physical Force." It is to sambrace the clock. Now that the scafnoiding and all the rubbish of conestruction have been stripped away, the suppris front of the building can be wiewed from far down Park Avenue, basthing of screne beauty. But the

night on this, the morning of ing itself, and the countless thousands an Arch of Triumph, erected to some Feb. 2, was long ugo set as the who hurry past and around and across military or naval victory, or to the

One model in plaster rests over the fireplace in the office of Whitney Warren, of Whitney & Warren, the One important part of the exterior architects of the terminal. Mr. Warren has written a brief interpretation That is the sculptured group which is of the group's significance and of the entire façade motive. In The Scientific American, under the title "Apologia," Mr. Warren wrote:

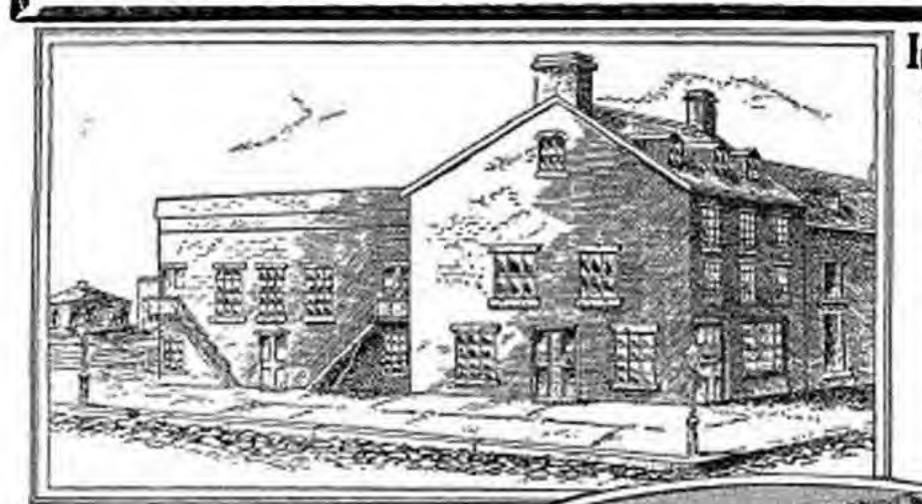
Architecture being a reasoned art. for any specified purpose there should be precedent and traditionevery motive and element should have its reason for being, and in all compositions, no matter how simple, the elements must explain themselves and justify their presence. In ancient times, the entrance to the city Averk of the sculptor that is to crown | was through an opening in the walls it all is yet to be done. This group or fortifications. This portal was

LTHOUGH one minute after mid- will be carved in stone upon the build- usually decorated and elaborated into rounding that may serve, by elaboraway must exist, and in the case of New York and other cities it is through a tunnel which discharges the human flow in the very centre of the town.

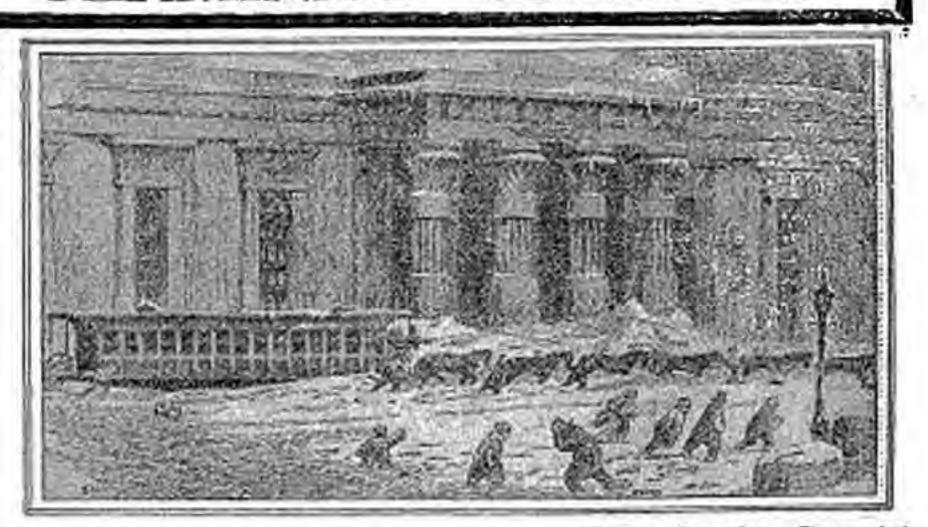
Such is the Grand Central Terminal, and the motive of its façade is an attempt to offer a tribute to the glory of commerce as exemplified by that institution. The architectural composition consists of three great portals, crowned by a sculptural group, the whole to stand as a monument to the glory of commerce as typified by Mercury, supported by moral and mental energy-Hercules and Minerva. All to attest that this great enterprise has grown and exists, not merely from the wealth expended, nor by the revenue derived, but by the brain and brawn constantly concentrated upon its development for nearly a century.

who wishes to attend some evening McAdoo tubes. dress function in the city without the time and trouble of going home and ing a room at the hotel. The evening Street will be reduced to the grade of access from the present Subway the west side line at Times Square. dress can be left in the dressing room a mere shuttle line. When the dual station, at the station when the suburbanite system is in working order there will The McAdoo tubes will have a double form without ascending or descending comes into town in the morning, and be two great north and south subway part to play. Not only will they give any steps. there he can shift his workaday togs lines, one on the cast and one on the direct connection with all the termini

## GROWTH EPITOMIZED IN TERMINAL CHANGES



In Eighty-One Years of Its History the Central Has Built Five Stations in Its Efforts to Supply New York's Evergrowing Population With Adequate Transit Facilities.



Office on Tyron Row-Fourth Avenue Railway.

ERHAPS nothing gives so clear a bird's-eye view of the tremendous growth of this city as does a glance backward over the eighty-one years that cover the history of the New York Central on Manbattan Island.

Here is just one quick glimpse that vividly shows the almost magical growth of the city's population and of its ever-increasing demand for greater transportation facilities:

In the late fifties, when the tide of population and traffic moved uptown, a new station was built at Twentysixth Street, on the present site of the Madison Square Garden. It was erected by the New York & Harlem Railroad, now a leased line of the New York Central, and shared by the New Haven Itoud as a tenant. This structure was one of the sights of old New York: the city was justly proud of its spacious new terminal. Yet that station of fifty years ago could be set down in the express concourse of the without touching the aids walls or reaching the roof.

But let us start at the beginning. The New York & Harlem Railroad was the earliest on Manhattan Island. It was built in 1832, and its terminal was on Centre Street, just back of the City Hall. At that time, however, the terminal was no more than the mere ending of the tracks, just as certain of the surface cars end their runs there

This railroad was partially operated through two tunnels. The first of there cut through the crest of Murray Hill from Thirty-fourth to Forty-first Street. The second was the so-called " rock tunnel," extending from Eightysixth Street to about 100th Street. From it the railroad descended over a timber trestle-about which timid folks were always nervous-to the Harlem plain.

It was soon decided that a station was a proper part of a terminal's equipment, and so a little later we find the New York & Harlem Railroad building a station at White and Centre Streets, the present site of the Criminu! Court Building.

The city north of the new station soon began to solidify, the streets became filled with traffic, and the increazing number of passengers necessituted longer trains. When the trains grew to the unprecedented length of five cars, only the first three cars rounded the sharp curve at Broome Street and continued on to White Street. The other two were cut off where the rails left the Bowery.

This expedient met conditions for a very short time. The city continued to grow, the Bowery began to be a real city street, and the people objected to locomotives running on it.

To meet this difficulty the management planned New York's first "uptown" railroad terminal. In 1857 the New York & Harlem Railroad station was completed at Fourth Avenue and Twenty-sixth Street, where the Madison Square Garden now stands, then the "outskirts" of the Nation's metropolis.

Yes, New York was growing, and andoubtedly it would continue to grow. The new station at Twenty-sixth Street was constructed with an eye on the future growth of the city.

It was used by the New York & Harlem Railroad and the newer railroad to New Haven, which used the former's tracks south of Woodlawn. Harlem trains swung out from one side of the station, New Haven trains from the

Its capacity caused New Yorkers to swell out with a vast amount of civic pride. They told out-of-town people. with much satisfaction, that 8,000 persons came in and went out by way of it every day. There were thirty trains

each way a day. A copy of an old time table on the Harlem Road is given on this page. After the completion of this great terminal no locomotives were sent south of Twenty-sixth Street. Horses were used to draw the cars through the pleasant suburban streets to the heart of the city. A few stops were made at the busiest cross streets, such

as Twenty-third Street, Fourteenth Street, and Canal Street. Soon there was more trouble for the railroad: people began to object to the locomotives running through Fourth Avenue to Twenty-sixth Street, though the tracks lay through the Fourth

Avenue tunnel from Forty-first Street to Thirty-fourth Street, now used by the trolley cars. The agitation became so strong that the railroad had to buy a big open lot at Forty-second Street for its engine houses and send the cars south from that point drawn by horses.

It was a few years after this that Commodore Vanderbilt began to play his part in the railroad affairs of the Nation. But before this is recounted let us glance at New York as it was Twenty-sixth Street, Built in 1819,

in the middle of the last century. On the east side of the city, York- up as the owner of a controlling ville and Harlem were villages clustered about Eighty-sixth Street and 125th Street, the former being reached by the Third Avenue surface railway, troi, Vanderbilt began the process of and the latter by the same road, and | "assimilating " a third-the New York the line of boats which started from Central. This was a union of ten little Peck's Slip. The Harlem Railroad also railroads, some running in the territory

The west side of the city was practically unsettled. Above Fifty-ninth Street, west of Central Park, there was only one row of stone houses-on Ninety-second Street, east of Columbus Avenue-and the Boulevard stages and the Eighth Avenue surface cars took care of all the traffic between Broadway and Central Park, and the Hudson River Railroad, with its stations along the river front at Manhattanville, Carmansville, Inwood, and Fort Washington, took care of the rest of the inhabitants of that section.

Street, and 125th Street.

The Hudson River Railroad was an independent line at that time that clung closely to the west side of the town. When it was first put in operation-not so many years before the time of which we are speaking-the cars were sent out from a little covered shed at the southwest corner of Chambers Street and West Broadway.

Then folks began to object to the locomotives going through the streets, and cars were drawn by horses to the yard at Thirtieth Street, where they were made into trains and the road engines attached. This was found to be unsatisfactory. Before the close of the civil war all passenger trains were being received and sent from Thirtieth Street. It is interesting to note here that it was at this station that Abraham Lincoln was received when passing through New York on his way to Washington for the inauguration in

And now to come to Commodore Vanderbilt. Late in the year 1862 this great railroad organizer set about buying the stock of the New York & Harlem Railroad. He is said to have bought much of it at 59 a share. In less than a year the stock was being quoted at \$50 a share.

What had caused this big jump?

justified. By 1864 Vanderbilt loomed amount of stock in the New York & Hudson River Railroad.

With these two railroads in his constopped at Eighty-sixth Street, 110th between Albany and Buffalo, others merely projected.



The Grand Central Depet as Completed in 1871.

and took the name of the absorbed up-State road-the New York Central. Such railroading demanded a real gateway in New York. In 1800 the plans for a new station, the terminal of the newly amalgamated lines, were completed.

There had been a great deal of discussion over the site. Commodore Vanderbilt settled the question by selecting n piece of ground on Forty-second Street. He called the new station the Grand Central because of its accessi-

Its cornerstone was laid on Sept. 15 180h. As the station began to take shape, New York opened its eyes and gasped. Nothing like it had ever before been seen. It had fifteen trucks in its trainshed. Some folks said that Commodore Vanderbilt was in his detage. Others explained the great depot by saying that the Commodore was simply | the city pay one-half of the expense, building a terminal that would last for all time.

The first train left the trainshed on Oct. 7, 1871. According to contemporary notices this wonderful shed covcred four acres of land, had two acres of offices under its roo; and required tifteen miles of steam piping to heat them. It conveniently accommodated a daily traffic of eighty-eight trains. three of them through expresses to the West. During its opening year 4,000,-000 people passed through its doors.

A picturesque annex of the original Grand Central was the Commodoro's fuel factory. It was next to a stable that stood where the Hotel Belmont now towers, and consisted of a treadmill operated by horses. This mill cut

Pulling Cars from Twenty-sixth Street and Madison Avenue to Terminal Near City Hall.

hung in front of each one. Now and then the men in charge of the horses would give them a nibble to keep up their spirits.

One day the Commodore stopped in at his fuel mill. The hay device interested him immensely. As he turned to leave he said to one of the men in charge:

"You'll have to see that you don't run out of hay here. If you should my railroad would go out of business!"

The completion of the Grand Central Depot, however, brought no rest for the railroad management. Within a month after it was finished there was a great public clamor.

Several cross streets passed over its approach yards at level; in fact, there were grade crossings all the way north in Fourth Avenue to Eighty-sixth

The horse cars in Fifty-ninth Street ied to have constant hair breanth escapes at the Fourth Aven :e clossing, and that was nothing to the crossing at Forty-fifth Street, at the mouth of the trainshed. A driver who look his wagon across those fifteen busy tracks literally took his life in his hands. It was a trip of daring for foot passengers. Beyond the wooden trestle leadng down to the Harlem plain there were also many grade crossings before the drawbridge at the Harlem River was reached.

The deaths at the many grade crossngs were so frequent that an agitation against the road was started which was even greater than the recent agitetion against "Death Avenue," on the

Mass meetings were held over Harlem. Yorkville, and in the district between Forty-second and Sixty-third Streets, and the watchword was, "Sink the track and arch it over." Wellknown speakers appeared at the meetings, and the agitation grew so rapidly that the whole city was up in arms.

The railroad was finally compelled to take action, but succeeded in having at which there was little complaint, so anxious were the citizens for the improvement.

By the beginning of the eightles the orminal was again in a state of conrestion. The suburban business had become a sizable traffic. The station was clogged morning and night, and so the annex, which gave four addilional tracks to it and provided for nost of the incoming traffic, was built

But it was not many years before complaints began to be heard again. complaints against the old waiting rooms and the general facilities for handling passengers.

As a result of these complaints, in 1900 the station was enlarged to accommodate about 60,000 passengers daily. The number of tracks was increased and three stories were added to the building. These changes cost over \$2,500,000.

Yet these facilities, imposing as they seemed at the start, soon proved inadequate. There were many reasons. One vas, of course, the rapid increase of opulation in New York and vicinity. inother, and perhaps the most imporant, was the immense growth of the uburban traffic. More than a million ommuters come into New York every norning from points within a radius of wenty-five miles, and a considerable art of this human stream pours brough the Grand Central. It/must be andled quickly and without interfernce with the through business. The

this near-by traffic. To the congestion of traffic was the added discomfort from the use of steam engines. This was especially obnoxious and dangerous in the tunnel. Sentiment developed for the electrification of the roads using the station. In January, 1902, conditions were crystalized by an accident which occurred neer to see signals on account of the smoke from a locomotive ahead. As,a result a regislative act was passed at Albany requiring the railroads, after a

resent work really began with a study

f possible improvements in managing

electricity through Park Avenue. Now that electrification was mandatory, fresh impetus was given to the plan of reconstructing the terminal. Here we reach the real keynote of the whole great project, for without electrically hauled trains the improvement could not have been developed along the broad and original lines that mark-it. Now that the great terminal has been opened, people are beginning to speculate on how long the new one will-last. 'No one can tell," said an old railroad

certain date, to operate their trains by

The Predecessor of the Present New Terminal.

With them three railroads under one | Spryten Dryvil and a bridge across the | the disagreeable ferry ride there; and the wood used in the New York Cen-Rumors were in the air, and within control all that was seeded was a shart | Medeen at Albany, so that folks going the great through trunk line between tral's locomotives. To keep the horses less than a twelvemonth they were lies from the Harlem trucks screen to west would so borger have to undergo New York and Betfule was established, at their drudgery a wisp of hay was

## MODERN TERMINAL SUPPLIES PATRONS WITH HOME COMFORT

CTATION .- A place where railroad should want to return after a shop-Thus says the dictionary, and for its ter, sent to a private dressing room, day and generation it spoke the exact for the use of which, with a maid in

Terminal has been opened to the pub- cause no worry to the traveler in the lic an enlarged definition of the word 'station" is needed.

ty-second Street, might accurately be dressing room at the same prices she described as a great railroad terminal with home trimmings attached. The management has not only planned a across the main waiting room or send station in which hundreds of trains daily can arrive and depart promptly, a station in which thousands and thousands of passengers can get to and! from their trains with the least trouble and inconvenience, but it has planned a station in which these passengers can find, if they so wish, many of the conveniences of their more or less far-away homes.

Said an official of the railroad: Let us bagin in the women's bootblack room. Women travelers at

Grand Central Terminal may step into a handsome, brightly lighted room entirely out of sight of the rubbernecks, where colored girls in neat blue liveries will polish their shoes. Or if hair gets out of curl in a damp day's journey the woman passenger may go to the women's hairdressing parlor in Grand Central Terminal, a magnificent apartment with walls and ceilings of Carrara glass, where none but her own sex will see while she has her hair dressed in the very latest style. Next she may step into an equally sumptuous manicure parlor, or, if she is in a hurry, the manicure will attend her while the

to primp up still more, or if she

trains regularly come to a stop for | ping tour to change her costume for the convenience of passengers. a social function, she may have her suitcase or her trunk, for that mattruth that is expected of a good dic- attendance, she will pay but 25 cents. Probably no woman ever started on a journey without forgetting some-But now that the new Grand Central thing. These little oversights need Grand Central Terminal. The little knicknacks she may need to complete The mammoth structure, facing For- hand, almost at the door of her pays in her favorite store, or if the halrdresser does not happen to have what she wants she has but to step a messenger to a hall, from which opens a row of shops right in the terminal itself, where complete lines of everything that travelers can be expected to want are on sale.

> After all these exertions the travsler will probably feel hungry. Only few steps away from her dressing room is a handsomely appointed res-When she is finally ready to go the

> traveler may step into a taxicab, with prices under railroad regulation, that will take her anywhere in short order, or if she wants a cheaper ride she may, without once stepping into the open, descend to a subway line that will take her to any part of New York, to New Jersey, or to Long

The only place on earth outside his own home that a man may have a private barber shop for his own exclusive use, with a barber in attendance at his pleasure, is at Grand Central Terminal. Many men, particularly those occupied with large affairs, like to get away from the crowd whenever possible. For this purpose they travel in private cars or in compartments or drawing rooms in sleeping cars. Now, for the first time they can have a private barber shop reserved by wire for their use upon Should the woman passenger want arriving in New York at any hour of the day or night. The cost of this

luxury, including the services of a barber, is \$1 an hour. Those who want a shave in luxury at lower cost may patronise the \$100,-000 public barber shop, with its walls and ceilings of Carrara glass. Here the customer may elect to be shaved in any one of thirty languages. Since travelers from all the nations of the earth pass through Grand Central

ROBTH. SOUTE: STATIONS. 6. bn: a. be. p.to a. to pto 8.45 8.30 0.00 9 507.05 6.40 5.10 9.40 0.54 Yorkville.... Mott Haven leirose ...... Fordham Williams Bridge 9.40 Hopt's Bridge 9.60 Gazville ..... 10.03 fart's Cornors.
White Plains. 10 40
lension 10.53
Jaionville 11.05
learantville 11.15 Chappaqua 11.27 10.317.01 8.005.16

New Castie 11.47 10.317.01 8.005.16

New Castie 11.49 10.46 7.56 7.505.06

Bedford 17.58 10.567.25 7.40.4 59

Whitlockville 12.10 17.637.35 7.274.51

Golden's Bridge: 12.20 17.707.60 7.174.42

Purdy's 11.167.48 7.074.35

Croton Falls 12.40 11.25 7.55 7.00 4.30

Brewsters 1.10

Dykemhus 1.21

Towners 1.51 Towners
Towners
Patterson
Pawling
South Dover
Dover Blaus

054 Time Table of the Harless Road

terminal, the management has provided the most extraordinary array of linguistic talent ever assembled in one business in order that no traveler may need to resort to the sign language to explain how he wants his hair cut. Being under rollroad regulation, the prices are only threefourths the rates at pretentious shops elsewhere in the city.

The man with two days' business or pleasure to crowd into one can reserve a dressing room at the barber shop, leave his suitcase there all day. rush back at 6 o'clock to get into

Should sudden illness seize the

equal rights with women.

traveler in the Grand Central Terminal a physician from the emergency hospital, right in the building, will be at his side within a couple of minutes. If necessary the sufferer will be tucked in bed in the hospital within another couple of minutes.

valet if he wishes, all for 25 cents. A

haberdushery adjoining the barber

shop is ready to replace a lost collar

button or supply anything else need-

ed. Here, at least, men are accorded

### HANDLING THE BAGGAGE

portation company and passenger. worked out for this old and vexatious

system he won't need to go to the bag- in: to the same routine. gage room at all; he will check his baggage with the same convenience and tion and his transfer or express com-

baggage check is handed to the passenger, who can thereupon go his way free from further baggage cares. a duplicate of the railroad check that he has already given to the passenger to the passenger's transfer or express

In the latter place a man identifies

### HE handling of baggage is one of duplicate is put on his valise, and the the greatest problems of the big vallse is then placed on an automatic

railway terminal-a problem the to the baggage room, which is back burden of which is felt both by trans- of the muin terminal building. In the model station just opened a trip to the proper train, let us see what new and satisfactory solution has been happens when a man checks a trunk

or other piece of luggage that has been in the tunnel on a snowy morning. delivered or is to be delivered at the owing to the inability of a train engl-The passenger will no longer need to station by express wagon. For once it hunt out a more or less remote baggage is in the baggage room and properly room. Under the new Grand Central checked all luggage is handled accord-

> pany check to one of the men at the baggage-checking counter. A railroad The man behind the counter fastens

carriage which bears it immediately Rather than follow this value in its

The passenger shows his transporta-

dispatch with which he buys his rail-On the east side of the concourses on both the suburban and express levels are baggage-checking counters. A passenger entering either of these concourses will find nearest at hand a row of ticket windows. His transportation purchased at one of them, he passes along to another row company check, and both are dropped of windows where, if he so desires, he into a pneumatic tube and shot to the baggage room. can secure his Pullman seat, berth or Continuing on his way, he comes to the baggage by means of the transfer

the baggage-checking counter. If he or express company check; the dupli-has hand luggage with him that he cate railroad check is put on the bagwishes to check, he goes to one section | gage, and the baggage is immediately of the counter which is especially set put in place so that it will go out on apart for this purpose. His transpor- the next train leaving for the destinatation shown, he receives a check; a tion specified on the railroad check.

man. "I hope it will last at least haif a century."

The TERRY & TENCH Co. (INC.)

has erected the following structural steel in the Grand Central Terminal with the celebrated Patent Terry & Tench Derricks:

AR of the NAIN STATION BUILDING. THE NEW BRAND CENTRAL PALACE.

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Office-Room 1042, Grand Central Terminal, New York City.

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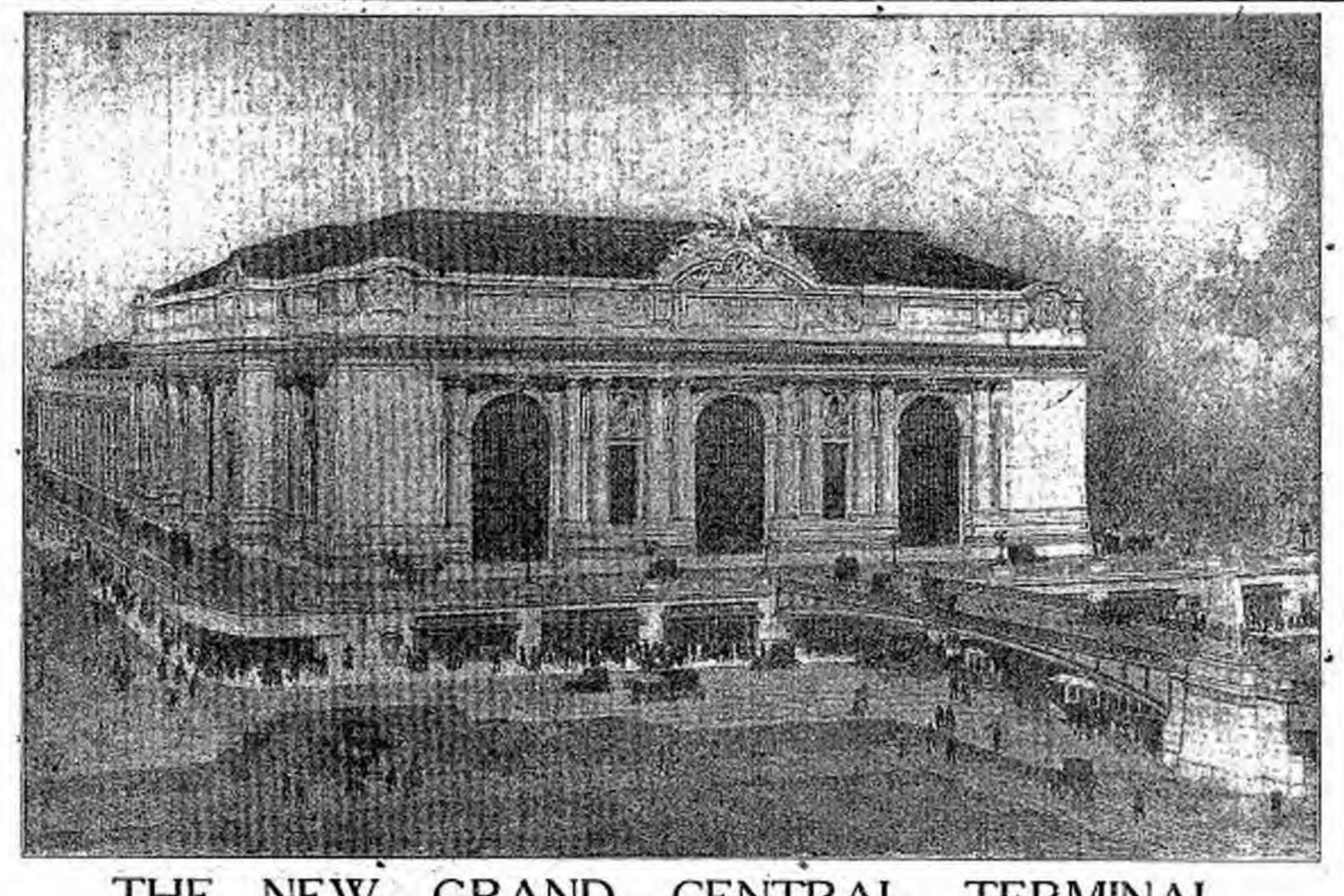


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BOTTOR & BREE. 17 Bressberg.

A. PAROLINE, 172 Bressberg.

A. WHITTALER IN LAST CO., 27 Piec St.

W. BURNLAN, E. Fast Comb St.

A. WHITTALER IN LAST CO., 1 Madden Ave.

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Adjoining

## Grand Central Terminal

is the greatest location for business of all kinds in this city. Full particulars of

## John N. Golding

Pine Street and 5th Avenue cor. 45th Street.

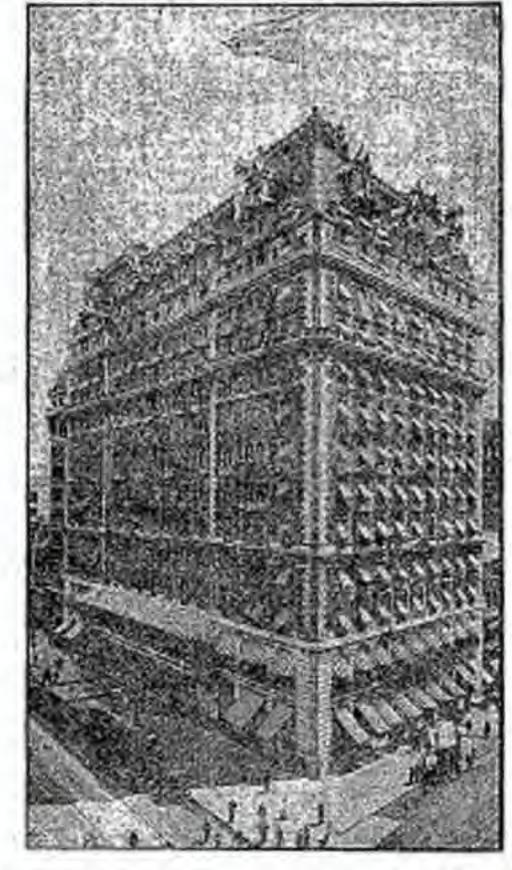
## KNICKERBOCKER HOTEL

## 42d Street at Broadway, New York City

Broadway-famous in song and story, pathway of men's feet from the days when it was an Indian trall until now, when gleaming lights and the wizardry of its world-wide fame make it dear to the New Yorker and a maryel to the visitor-Broadway-Why, its very quintessence lies in this great Hotel!

Forty-second St. and Broadway forms the true heart of New York, and this great pulsating thoroughfare, Broadway, most wonderful in the world, holds the Knickerbocker Hotel the centre of its dynamic energy, as it is the most magnificent specimen of architecture along its entire length.

Within, the Knickerbocker is worthy of the international fame it enjoys as the "Cosmopolitan centre of the world." Rare antique heraldic banners coltected in Europe-the almost priceless heirlooms of noted European families-ornament the walls of rooms and corridors gleaming with classic Pavonazza marbles and with bronze. Superbly beautiful marbles, the work of America's greatest sculptor, Frederick MacMonnies, divide attention with tapestries rich and rare, while here and there throughout the vast building are hung the most charming examples of the work of Maxfield Parrish, Frederic Remington, James Wall Firm, and Saint-Gaudens's pupil, John Flanagan.



Six hundred sleeping rooms has the Knickerbocker. Fifteen stories of comfort and luxury, filled with all that can appeal to the artistic sense. No expense has been spared in making the Knickerbocker Hotel one of the most remarkable hotels in the world, and from the vast subterranean winecellars, stocked with rare and precious vintages, to the New Armenonville open-air restaurant (Mr. Regan's own and characteristically happy thought), all is the best that could be devised after careful comparison with the best that can be shown by the rest of the New and Old World. In another aspect-that of facilities-the Knickerbocker Hotel is unrivalled. It is equipped with the latest Marconi wireless apparatus, at the service of patrons. It is at the centre of converging lines of railroad and city traffic, and contains within a radius of 400 yards all New York's leading theatres, while the greatest stores of the Metropolis are within a few minutes' walk.

## James B. Regan Importation Company, 140 West 42d Street, Times Square

Importers of Vintage Champagnes, English Cuvées, Russian Caviar, Chateau bottled Burgundies and Clarets, Vintage Cigars.

## FIRST GREAT STAIRLESS RAILWAY TERMINAL IN HISTORY

I which threw wide its doors to the that revenue-producing structures night, has been hailed as a stairless as good as settled that the station itself station, the first of its kind in the would be an underground station. history of terminal building the world When it was decided that the new over. The first passengers to rush terminal should be under ground, and through this new gateway to the St. not merely slightly depressed, but two morning found not a single stair in desirable means of communication be- stations. their way. They could go from the

point where the red cross-town car !

dropped them in Forty-second Street,

straight to their waiting berth in the

Pullman, one level below the street,

without finding a single step to de-

scend. It was their introduction to a stairless terminal.

the surface of the city. minal discovered the possibilities of ways. So did those who built the

THE New Grand Central Terminal, rooting over the transacus to the care traveling public at midnight last might be reared above them, it was

the late Fall, those bound for the near- see its value for terminals on a large Street.

ingeniousness of this arrangement,

### Unique Architectural Feature by Which Passengers Reach Trains by Easy Grades.

pyramids. It is this ancient device of so gently from the street to train as in various parts of the station. Over

heard exclaiming over the novelty and Forty-second Street to the limited train | "the lame man decided." for Chicago without descending a step The suburbanites have known about But the idea is not new. The Grand and without descending a slope so it for weeks. Ever since that part of Central builders cannot claim it as their steep, for instance, as that Murray Hill

by towns have been experiencing that scale. The idea itself is centuries old. The old idea would have failed in ex- elaborate pains to insure perfection and pecting public was allowed to help in inestimable boon to a hurrying public, It was evolved when a not dissimilar ceution if the ramps had been too steep efficiency. At no point was greater the work. Ramps were cunningly and the gently sloping footway, leading problem confronted the builders of the for comfort. And in this case, it was care taken than in this matter of the down by almost insensible degrees to camps for the old Roman armies, and not the comfort of the hale and hearty | ramps. Every sort of ramp was tested, regular stream of passengers, and the the trains depressed two levels below those whose duty it was to hand the that was considered. The builders of both as to angle and material. The effect on the stream carefully noted wagons and heavy artillery to rumparts the terminal decided that the ramps, tests were impressive in their thorough- by men stationed close by. Thus, the

the long, gentle slope that has been in- to present not the slightest difficulty to these every employe, high and low, in Louis Express that was scheduled to deep levels beneath the street, there corporated as one of the most striking the old, infirm traveler, to the little the great army of terminal service, pull out of the station at 12:25 this arose the great question of the most features of the latest word in railway tot toddling along at his mother's side, trudged for the purpose of " seeing how to the man laden down with-baggage it felt." Girls from the telephone tween street and train. The engineers These ramps are the gentlest of which he declines to relinquish to any booths, men from the baggage room. and architects turned the question over slopes. Those which lead down to the one of the most cordial attendants, to boy pages and matrons, all these in their discussions, and in the end the suburban concourse are, of course, the women trailing a long and prepos- walked up and down the test ramps, solution was the ramp. Some of the steeper, but not so steep as to be un- terous train. The ramps must be con- Some went empty handed, some went passengers who have been using the pleasant footways. Those leading to venient to these extreme types. They arm in arm, some carried heavy bungentle incline that leads to the already the express concourse are barely per- must suit the most halting gait or populous suburban concourse have been ceptible. The traveler moves from fail. It has been said of them that

the selection of just the right gradient. ness of guthering impressions. These At almost every stage of the building the terminal was put into daily use in own, although they were the first to grade leading south from Forty-second of the terminal, the privileged spectator found the builders going to the most

dles. Some were fut, some were lean, some tall, some short. Even the Directors of the road seized sultcases So a deal of study was given over to and trudged up and down in the busiwere all duly noted down and the results compared. Then, too, the unsusunobtrusively put in the way of the When the builders of the . cw ter- of a Roman city. They built long run- if ramps there were to be, must slope ness. Temporary ramps were set up very readers of these lines, some of them, may have contributed their part to the fashioning of the new Grand Central Terminal.

> Of course if the exact truth were told, the Grand Central is not a stairless terminal at all. There are flights of stairs, broad, sweeping, handsome stairs, leading from one floor to another. But these are off the direct line of passage between street and train. They are little sideways, short cuts is quite possible to move from your finding stairs in your way. And that was the end desired.

> The terminal builders were set against stairs. Stairs are always uncomfortable. They are worse than that when a crowd is using them. They are dangerous. A packed stairway is a fine breeding place for a panic and a disastrous one. The architects of the Grand Central shunned them, with something of the spirit of the man who said, when the first corkscrew elevator, a half century ago, began its wheezing ascent in the old Fifth Avenue Hotel, of blessed memory, that stairs were doomed. The stairs have been banished, to all practical purposes, from the terminal, and banished so effectively that that last annoying and often perllous step at the end is gone, for the station platform and the train platforms are built handle 100,000 persons it day, were im-

> practicable. Hence the ramps. train in the lowest level of the terminal

horse to stumble. That is what it from street to train, from Strain to street. There need be little asking of means to have a station stairless. There is one thing that must be said the way. Follow the ramp and you get

"In the Heart of New York"

about the ramped station. It is simple there,

## Vanderbilt Avenue Building

Northwest Cor. Vanderbilt Acenus, 42nd to 42rd Street Right at the Grand Central Station

N this commanding site, at the meeting point of the New York Central, New York, New Haven & Hartford, four subway systems, surface and elevated lenge, the American Real Estate Company is erecting the hardssome Vanderbilt Avenue Building, which will be

### Ready for Occupancy May 1st, 1913

Berides heleg the wont assessible building in New York, It wills peller to tempts many exceptional advantages. If will be with a case working districts of the principal botels,

restaurants used clubs of New York. It will provide direct, indoor passageway to the Grand Central

It will be in the heart of the most talked-about business section in the city, assuring from the outset distinct advertising value from the location.

The structure itself orth he dignified and attractive both as to axterior and interior, and high-cluss tenants will find bare most congernal paarters and agreeable turroundings. Every modern convenience and 24-hour service.

For floor plans and information in to space, resitals, etc., son are invited to communicate with the

American Real Cstate Company 527 Fifth Avenue

Sentential management of the contract of the c

New York

### TERMINAL TRAINS RUN BY LOOP SYSTEM

steam or electric. This difficulty in trip. olden times used to be overcome by the; The Grand Central authorities have sufficient, even for the most inexpert. | 000 persons every year. When the shunting or transfer table, but now the decided on the loop system with a deal to suggest that the new terminal has traffic exceeds that, who knows? It,

of these are the loop system of tracks; There have been some, however, cession the homes that succeeded the tion beyond the Harlem River. and the "Y" system which is used among those interested in the selection, little old station at Madison Square Indeed, even when the question of very effectively in the Union Station who have felt that something better has been so enormous that all attempts building the present terminal was first at St. Louis, although some students might have been done. Among these to compute the future growth on the under serious discussion, the wisdom of of the subject consider this system is Mr. Whitney Warren, of Warren & basis of the old advance have been retreating to Harlem was debated. But rather dangerous. Another method is Wetmore, chief architects of the termi- simply staggering. that used by the Pennsylvania Station nal. Mr. Warren approved some form in New York, which virtually gives the of the shuttle system in preference to advantage of a through station.

decided upon as the one to be installed, in a "looped" terminal. in the Grand Central Terminal for both . "The shuttle system is used to perexpress and suburban level, but this is fection on the Brooklyn Bridge, where and out of the new terminal can make nessed from the starter's tower." use of the loop convenience.

tion will be due to this system. This is when the magnitude of the train disempty, around the loop under the sylvania Station, thirty-two in the southerly front of the station; and South Station, Boston, or the St. Louis than a year ago, Charles A. Reed, ing.

or sub-station is the stalling of station yard, where they will be in the Frankfort-en-the-Main Station, the locomotive, whether it be cleaned and made ready for the next Germany.

The railreads are overcoming it by them to handle it the terminal all the The traffic growth that has compelled and the swelling of the tide of traf-

the loop in the belief that a too heavy It is the loop system which has been system might bring congestion, even

not yet ready for use. Some further the trains weave in and out in a wonpital now being torn down at the cor- other day. "They can send 1,000 perner of Lexington Avenue and Forty-sons a minute over the Brooklyn second Street, will be necessary. It Bridge, and no one pays any attention fore the many trains that daily pull in to be appreciated until it has been wit-

The necessity of some such system The great train capacity of the sta- as the "loop" is better appreciated estimated at a maximum of two hun- patcher's task at the new terminal is dred trains an hour. Instead of trains realized. It must be remembered that coming in, discharging passengers, and it has a total of sixty-eight tracks, of is a general agreement that the itects. He was graduated from the poleon rode on horseback up to the top backing out in the old cumbersome which forty-six have platforms, as fashion, they will continue, when against twenty-one tracks in the Penn- sult.

THE great objection to the terminal then will run over to one side of the Union Station, and against eighteen | terminal will serve forever, but, ac-

No one assumes that the present for many years to come.

cording to the Grand Central authoritles it, will be fit to permit the These figures and comparisons are passing through its gateway of 100,000,

the new terminal opened to-day is good

TERMINAL'S FIRST ARCHITECT

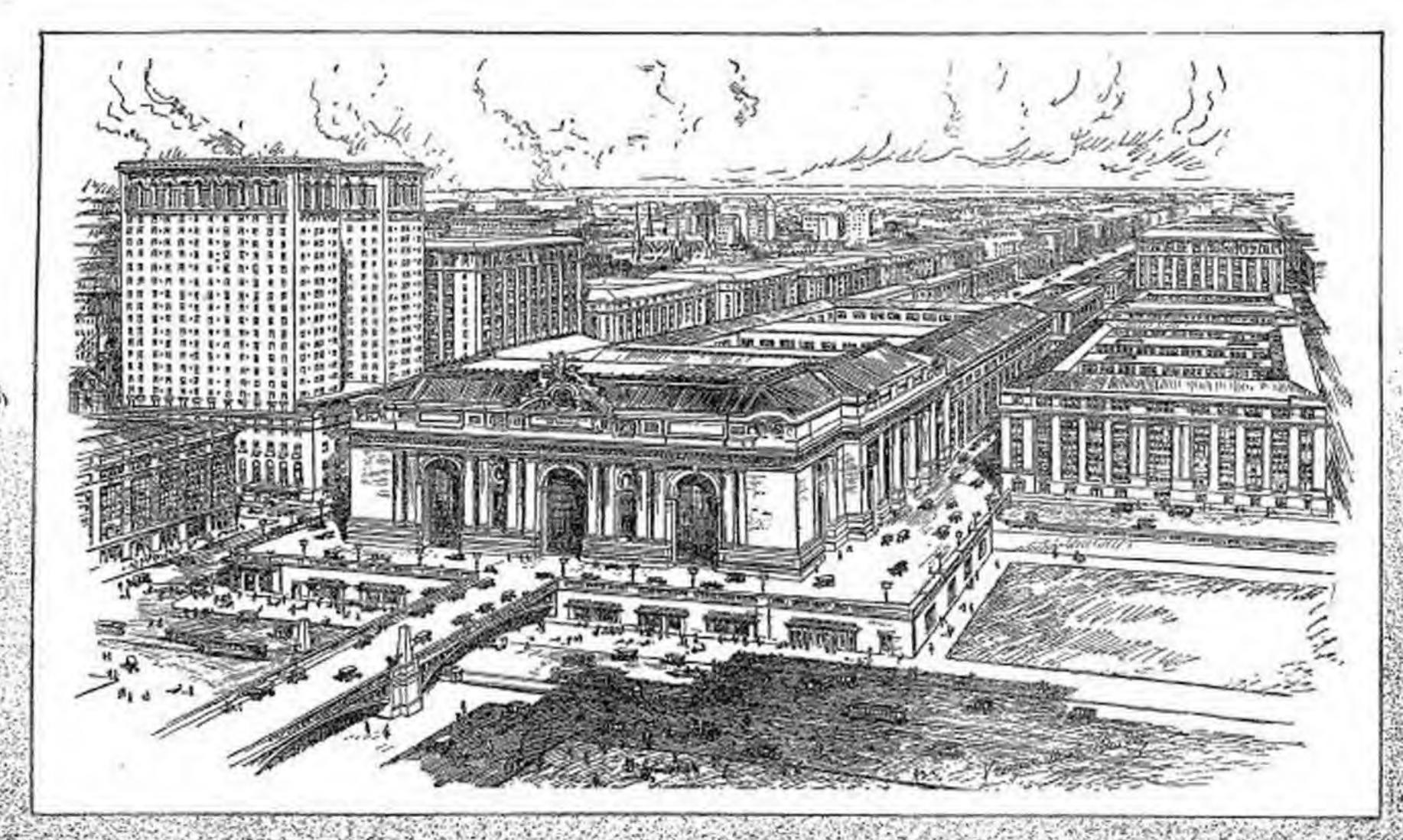
T has been said of the new Grand head of the Reed & Stem firm, was at called the "engineer-architect" feature had to leave it. of the work. Everywhere to-day, the passerby hears applause for the out- live head of the New York Central & As Virgil said of quite a different come, and among good judges there Hudson River Railroad Company arch- terminal, "facilia decensus." As Na-

Central Terminal that no building the head of the board of architects, but in ancient or modern times has Mr. Reed died on Nov. 12, 1911, and excavation, notably beneath the hos- derful fashion." Mr. Warren said the haustive study. Two New York firms more has brought the work to the conof architects, Warren & Wetmore and clusion signalized by to-day's opensign and the general aesthetic treat- of the emergence into visible result ment of the subject, while Reed & Stem of this, the largest and most ambitious have been credited with what has oeen work of his long career, he should have | flush. Elevators in a terminal, soon to By official title Mr. Reed was execu-

collaboration was fruitful of good re- Massachusetts Institute of Technology, of the Campanile, so a mounted policeand the last thirty years of his life man from "the finest" might easily At the outset and until little more were devoted to railroad station build- ride from Forty-second Street to a

machines are so big as to make this of confidence and enthusiasm. They been built to last for many years to has already been suggested that by from one part of the station to another. say, in its behalf, that it will enable come. How many years no one known that time the growth of New York, And the essential fact remains that it any one of several arrangements. Some train business of a six-track road. the road to build in such rapid suc-

been made the subject of such an ex- since then the firm of Warren & Wet-Reed & Stem, collaborated on the work. ing. Throughout the architectural To the former firm has been ascribed world it was recognized as a thing of will probably be all of another year be- to it. It is really marvelous and not, the credit for the broad outlines of de- peculiar pathos that, just on the eve



## From the New Grand Central Terminal -

## 20th CENTURY LIMITED

- the world-famous "Overnight Train" which saves a business day between New York and Chicago and places these great cities only a good night's sleep apart.

# To CHICAGO

Lv. New York 2.45 p.m. Lv. Chicago 12.40 p.m. Ar. Chicago 9,45 a.m. Ar. New York 9,40 a.m.

"Water Level Route" - You Can Sleep

# THE WESTERNER

-the popular new train with no estra fare-plensing daylight traveling and refreshing rest at night.

To CHICAGO CINCINNATI INDIANAPOLIS and ST. LOUIS

2.00 p.m. 2.11 p.m. Lv. New York 5.00 p.m. Lv. 125th St. Station 10.50 a.m. Ar. Chicago 10,50 a.m. Ar. Cincinnati 5.00 p.m. Ar. Indianapolis Ar. St. Louis

Water Level Route" \_You Can Sleep

# TheWOLVERINE

-ensures a comfortable, refreshing journey overnight. The new Detroit River Tubes eliminate the necessity of ferry transfer at Detroit.

## To DETROIT and CHICAGO

5.00 p.m. Lv. New York 5.09 p.m. Lv. 125th St. Station . . 7.15 s.m. Ar. Chicago . . . . 2.00 p.m. Ar. Detroit

"Water Level Route",—You can sleep

## SOUTHWESTERN LIMITED

-the splendidly appointed train, affording excellent service to the Southwest.

## To ST. LOUIS CINCINNATI and INDIANAPOLIS

10.50 a.m. Lv. New York . 10.50 a.m. 5.00 p.m. Ar. Indianapolis

"Water Level Route".\_You can sleep Relieved and Pullican thekels for all these trains extra delivered by Special Memberger without address charge. For inther later matter, 1276 Broadway. George Eastern Panamper Agent, 1276 Broadway.

New York Photos, 6310 Medicon Beecklyn 'Phene, 167 Main

## LAKE SHORE LIMITED CLEVELAND LIMITED

-two splendid trains, each enabling you to leave New York after business bours and to arrive in Cleveland after a refreshing sleep, before business begins in the morning.

## To CLEVELAND

Lake Shore Limited Lv. Grand Central Terminal 5.41 p.m. Lv. 125th Street Station 6.55 a.m. Ar. 105th St. Station, Cleveland Ar. Union Station, Cleveland

Cleveland Limited 6.30 p.m. Lv. Grand Central Terminal 6.40 p.m. Lv. 125th Street Station Ar. 105th St. Station, Cleveland Ar. Union Station, Cleveland 7.15 a.m. 7.30 a.m.

"Water Level Route"-You Can Sleep

## EMPIRE STATE EXPRESS

-the leading train of an unequalled New York State service-5 day-trains and 5 night-trains at convenient hours.

# To BUFFALO

Lv. New York 5,30 p.m. Ar. Buffalo . . . . .

Daylight ride along the Hudson

LINES

## THE PHILIP LEWISOHN BUILDING

113-115-117-119 WEST 40TH ST. THROUGH TO 114-116-118 WEST 41ST ST.

# A Twenty-two Story Mammoth Office and Mercantile Building A Whole Block in Depth

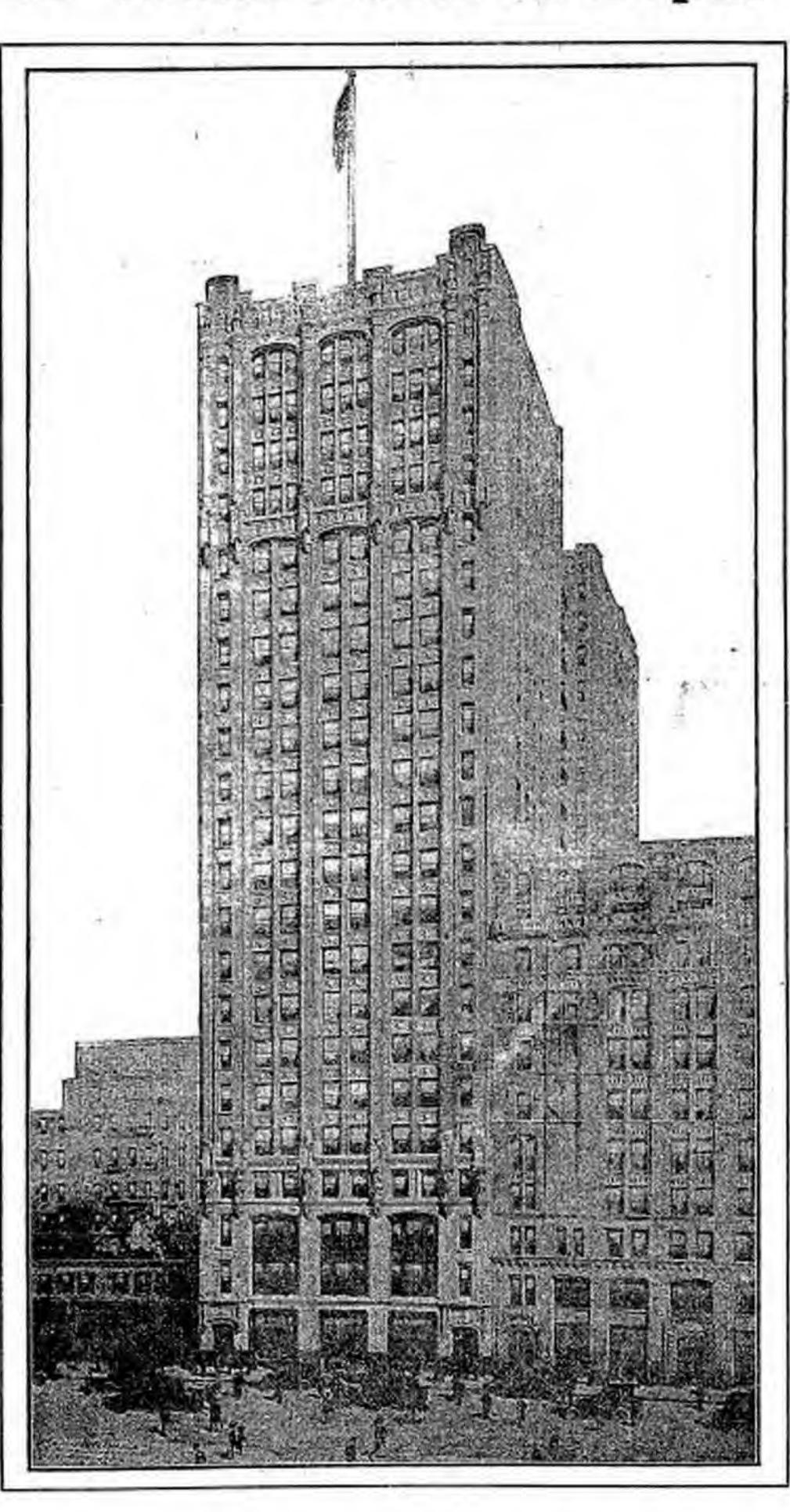
The only wholesale office building in this section.

Each entire floor. suitable for large corporations as their executive offices.

Store and basement covering 28,000 sq. feet, and each floor 14,000 sq. feet.

Each entire floor splendidly adapted for large firms as their showrooms and offices

Exceptional light.



Absolutely fireproof.

Sprinkler system and supervisory firealarm sprinkler system throughout the building.

Eight high-speed elevators.

Its construction incorporates every improvement and convenience the present day offers.

Low Rentals Insurance

Inspection invited.

Full particulars and floor plan can be had at

WEST 40TH & 41ST STREETS REALTY COMPANY, 88-90 FIFTH AVENUE

(OR YOUR OWN BROKER)

### ONE SIGNAL TOWER CONTROLS SEVENTY-NINE ACRES OF TRACKS

EVENTY-NINE acres of tracks over which come and go almost a thousand trains a day, all controlled from one central signal and switch tower!

To the railroad man that is one of the greatest of the mechanical triumphs that the completion of the New Grand Central Terminal typifics.

This tower is the central nerve point, the brain of the terminal. It gathers under one masterful control the bewildering train movements over the intricate web of tracks that lead into That great station.

Not a wheel can start to turn without the consent of that nerve centre. Not an incoming train, with its precions human load, can enter on its final approach to the platform until the terminal brain has signified its permission.

Needless to say, it is electricity that makes this terminal brain or nerve centro possible: that permits the operator in the tower to instantly reach here and there over the seventy-nine acres of tracks, throwing switches and setting signals.

This electric brain, or (to drop metaphor) this electric switch and signal tower, is at Fiftieth Street.

This central operating station is, in itself, worth going a long way to see. It is the twentieth century idea in the electrical control of trains. It is the largest thing of its kind in the world, and to the perfection of its operation is committed the safety of millions of passengers a year.

In the old days, when the tracks were open to the sky, it took an army of men to throw the switches by hand in the terminal yards. Later, with the coming of the control of switches from the towers, it took a smaller army to throw the long levers back and forth. That was called the manual system,

Then came the automatic system that was worked by compressed air, then the combination of air and electricity. Now it is electricity alone that does the work.

This main signal tower is a fourgtory building below the street level, and houses the interlocking machines by which the switches und signals are ated. The machine for the suburban level is the largest ever constructed, and has four hundred levers, each of which operates a switch or signal. On the floor above is a machine with three hundred and sixtytwo levers, operating the switches and signals on the express level.

"To each forty levers a man is assigned who works under the instruction of a train director, who decides upon the track whereon each train is to be placed. The movement of the trains is indicated by little electric lights on a chart which is a fac simile of the track layout of the yards. As the trains pass over the switches the lights on the thart are extinguished and not relighted until the train has passed over the switch onto the next one.

To get an idea of bow this intricate system is worked, let us visit a long, narrow room on the second floor of the signal tower. It is from this room that the switches and signals of the suburban level are operated.

In this room there is something that looks: like a handsomely finished oaken case. It is about seventy-five feet long. about as high as an ordinary upright plano and about as wide.

Inside, but concealed from view, is a mage of electric wires-slender cords that resemble the seeming tangle at the back of a big telephone switch-

In front, breast high, is a double row of metal handles, each with a straight grip a hand's breadth long, one up and one down alternately.

Over at one side of the room, about halfway down its length, a man sits at a desk on which a telegraph instrument chatters intermittently. On a frame of ground glass beside him is etched a map of tracks in the terminal, spreading out fanwise from the mouth of the tunnel under Park Avenue. A little circle about half the diameter of a dime marks the point where each track,

branches off. As soon as the train "hits the hill" -as they call emerging from the tunnel mouth—the first bulb lights behind the first of these, little circles. The tower director—the man at the telegraph key-knows that the train is coming, for he has been advised of its progress ever since it reached High Bridge or Mott Haven Junction and knows just what he is going to do with it, just where he is going to place it, as soon as it gets within his reach.

The tower director looks over to the men standing before the long row of handles and says, "124" or "58."

Each handle has a number above it. The man who has the number called within his division of the long box pulls the corresponding handle. As he does so he feels a tiny thrill that is the indication that the "high field" motor that controls the switch is doing the work. Then there is a gentle click. which is the second "indication" telling of the release of the armature magnet. A little square of round glass: above the handle is illuminated and shows that the switch and signal are set. Another little circle lights up on the tower director's map, another number is called, and so on until the train or the engine is at the end of its jour-

Should the tower director call a wrong number or should one of the men misunderstand him and pull the wrong lever the electric indicators would show the error at once. Not only that, but that particular section of the interlocking system of switches and signals on the tracks outside would show it to the eye of the engineer.

Even if the engineer did not see it the train would be "tripped" automatically and brought to a stop until the error was rectified.

So accurately is the movement of the trains indicated by the little electric lights on the chart which is a fac-simile of the track layout of the yard, that the exact position of every train at every moment is known, even to the point of the last car's location and that of the front of the electric motor.

Nor is such a mass of important detall rendered burdensome and therefore confusing to the operators. Like the accurate vision of the eye, the brain of the terminal takes in without apparent effort the entire situation. "At a glance" is the only word for it.

The room is perhaps not solemn to the men, but it seems so to you. The air is heavy with duty. You do not speak. You would shrink back at the very touch of those great levers, nor can you be induced, hardly, to throw one, though you are told it is not in use and you are invited to throw it by way of explanation.

Should one of the operators turn to address you for a moment, you instinctively ask him not to take his eyes off his work.

Sorretime or other you may have been admitted to the wheelhouse of an ocean steamer. But you quickly realize that, except perhaps in the manocuvers of a battle fleet, a pilothouse is nowhere near so momentous as is one of the signal rooms in this tower.

In a signal tower the emergency is not the exception; it is the whole thing. Every moment is emergency, either actual or possible.

"I hear people talk about emergency brakes," said one of these operators. "I see emergency wagons about the streets. The emergency hospital is down the avenue below my house. I smile. Why, I cat, drink and breathe emergency in my work. It is funny, but you cannot surprise me with anything. My wife knows that. If the baby fell out of the window my nerves would not jump. I really don't like it. for I can have no thrills. I am always cool. That is what my job has done

In addition to the throwing of

switches and the setting of signals on the railroad tracks, electricity has been utilized for numerous other lesser signal devices.

Not the least important of them, and like so many of the others, an ontirely new feature in terminal signaling, is the system of advising the gateman on the concourse when to open the gates and admit passengers to the trains.

An electric lamp is sunk in the handrail in front of each gate and when the train is ready to receive passengers the conductor presses a button, illuminating this lamp, thereby notifying the gateman that all is ready. At the moment the train is due to leave the gateman will close the gate and press a button located on the same hand-rail, which will illuminate a lamp on the platform near where the conductor will stand, thereby notifying him that the gate is closed and he may proceed.

Thus far mention has only been made of the use of electricity in connection with the signal and switch system of the new terminal.

Although in this quick-moving age it is a comparatively old subject that was thrashed out a few years ago, some mention should be made of the use of electricity as the motive power in this mammoth station.

As has been said in a previous article in this section, it was the substitution of electrical for steam traction that made possible the utilization of the air rights by the building of a terminal yard and station entirely below the street level.

The important question then presented itself as to what system of electric traction would best meet the conditions.

President Newman quickly realized how vital a question this was. There was no precedent whatever to go upon. The conditions were new; the problem quite untried. Moreover, at this time there were two great rival systems of electric traction in the field, the direct current and the alternating current.

President Newman organized a special board of electrical and engineering experts to thrash out the question. It took them two years to come to their final conclusion that, all things considered, the direct-current, third-rail system would best meet the conditions. The New York, New Haven & Hart-

ford Company also has its terminal at the Grand Central Station, The management determined to electrify its main lines as far as Stamford, Conn., and, after mature consideration, it decided to adopt the alternatingcurrent, high-tension system, using 11,000 volts in an overhead line.

The New York Central suburban electric zone was to extend thirty-four miles to Croton on the main line and thirty miles to White Plains on the Harlem.

The direct-current system, it is said, has the advantages that the third rail affords a more compact and ship-shape system of construction; that the pressure is lower; and that the risks of accident are reduced practically to the vanishing point.

The company has done the electrical world great service by publishing very complete details of the original cost, cost of operation, and the risks and accidents of operation, thereby placing the art of steam, trunk-line electrification in possession of a large amount of very useful data.

As has been said, the buildings in the terminal area are erected over the tracks of the yards, and consequently where ordinarily the heating, lighting and power machinery is located trains are running back and forth. To overcome this condition, a power and heating plant of great magnitude was erected at Fiftieth Street, between Lexington and Park Avenues, and therein is assembled the machinery for lighting and heating all the buildings in the terminal, both present and prospective. The hot water used in heating the general office, Post Office and station buildings travels over a mile before it

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